

What is Claimed is:

1. A system for manufacturing a non-woven web of fibers comprising:

a spin beam assembly configured to process and deliver a plurality of polymer streams for extrusion through spinneret orifices, the spin beam assembly including a plurality of delivery passages in fluid communication with the spinneret orifices, wherein at least two of the delivery passages are configured to deliver separate polymer streams of different polymer components to the spinneret orifices;

a quenching chamber configured to receive and quench extruded filaments from the spinneret orifices, the quenching chamber including a gas supply source to direct a gas stream at the extruded filaments;

a drawing chamber in communication with the quenching chamber and configured to receive and attenuate the quenched filaments; and

a forming surface configured to receive drawn filaments emerging from the drawing chamber and form a non-woven fibrous web on the forming surface;

wherein the system maintains the extruded filaments in an enclosed environment between the spinneret orifices and the drawing chamber to prevent uncontrolled gas currents from contacting the filaments.

2. The system of claim 1, wherein the spin beam assembly includes a plurality of manifolds to segregate and independently maintain the polymer streams of different polymer components at different temperatures.

3. The system of claim 1, wherein the spin beam assembly includes a plurality of metering pumps configured to independently deliver polymer streams of different polymer components at varying flow rates to the spinneret orifices.

4. The system of claim 1, wherein the system is configured to produce arrays of multicomponent fibers.

5. The system of claim 1, wherein the system is configured to produce arrays of bicomponent fibers.

6. The system of claim 1, wherein the system is configured to produce arrays of single component fibers, wherein at least one single component fiber consists of a polymer component that is different from a polymer component of at least one other single component fiber.

7. In a system for manufacturing fibers including a spin beam assembly, and a quenching chamber in communication with a drawing chamber, wherein the system maintains an enclosed environment between the spin beam assembly, the quenching chamber and the drawing chamber to prevent uncontrolled gas currents from entering the enclosed environment, a method of forming a non-woven web of fibers comprising:

(a) delivering a plurality of polymer streams from the spin beam assembly to spinneret orifices, wherein at least two of the polymer streams include differing polymer components;

(b) extruding the plurality of polymer streams through the spinneret orifices to form a plurality of filaments;

(c) quenching the extruded filaments by contacting the filaments with a gas stream in the quenching chamber;

(d) drawing the quenched filaments in the drawing chamber; and

(e) depositing the drawn filaments onto a forming surface to form a non-woven fibrous web on the forming surface.

8. The method of claim 7, wherein step (a) includes:

(a.1) segregating polymer streams including differing polymer components into a plurality of manifolds; and

(a.2) independently maintaining the polymer streams in each manifold at different temperatures.

9. The method of claim 7, wherein step (a) includes:

(a.1) delivering segregated polymer streams at varying flow rates to the spinneret orifices.

10. The method of claim 7, further comprising:

(f) forming an array of multicomponent fibers.

5 11. The method of claim 7, further comprising:

(f) forming an array of bicomponent fibers.

12. The method of claim 7, further comprising:

10 (f) forming an array of single component fibers, wherein at least one single component fiber consists of a polymer component that is different from a polymer component of at least one other single component fiber.

continued